

communications report

foreword

This report is the end product of an extensive investigation into your company's communication needs. It will firstly describe (in understandable language) your current needs, and then consider any possible future ones. It will then recommend an appropriate internet connection to suit your company's requirements, and advise you on purchasing an office network solution. Next it will proscribe several security procedures that each employee will need to perform, followed by a specialised internet access policy that all are required to adhere to. Finally, it will direct email users within your company along the narrow path of effective usage.

table of contents

1. foreword
2. table of contents
3. description of current communication needs
4. possible future needs
5. internet connection and office network
6. security procedures
7. internet access policy
8. how to use email effectively

description of current communication needs

- Internet connection

Pipeline Software Development requires an internet connection. Currently, there are many different ways of connecting to this invaluable resource. This section will simply describe the most common methods of doing so, to attempt to provide you with at least an idea of the current scope of internet connectivity.

The most typically used means of connection to the internet are ordinary telephone lines. This is presently possible using a number of different technologies. All of these different technologies require the use of a modem. This is a piece of hardware that changes digital data into analogue form, and vice-versa. In other words, it enables information from your company's computers to be transmitted to other computers over the telecom network.

The first mainstream technology to be used for internet connectivity is what is known as a 'Dial-up connection'. With this type of link your computer literally dials (hence the name) a phone number provided by the internet service provider, connects to a server (a computer that provides a network connection) and away you go. This type of connection gives you full access to the whole of the web, but is incredibly slow. The standard 56k dial-up modem can *theoretically* transfer 56 Kilobits of data a second; this means that you can (again theoretically) transfer up to 7 Kilobytes a second (although to get a full 7k is near impossible due to the compression overhead). Nowadays most web pages include images and other large objects. These bits of

multimedia together total to a large amount of data, therefore dial-up connections struggle even when downloading the average sized page.

An Asymmetric Digital Subscribers Line (ADSL) broadband internet connection is another method that uses a modem over standard telephone line. This connection works by splitting up the line into two separate channels, one for data (the web) and one for voice (phone calls). This means that you are able to be online and on the phone at the same time. The word 'asymmetric' is used because the download speed differs from the upload speed. In the UK, the maximum download speed for ADSL1.0 connections is 8Mbps (megabytes per second) that is over 30 times as fast as dial-up, and the standard upload speed is 256Kbps (kilobytes per second). However, ASDL2+ is currently being rolled out and the telephone exchange in south-west London which your company's telephone line is connected to has been enabled with this capacity. This new technology allows for ludicrous download speeds of up to 24Mbps and upload speeds of up to 1.3Mbps! To be able to use an ADSL broadband internet connection you will need to have an enabled BT telephone line, an internet service subscription, an ADSL (1.0/2+) modem and a micro-filter.

The internet can also be accessed by another means: a cable network. This is another type of 'broadband', but this type does not use a standard telephone line to communicate data. This type uses a modem and a coaxial cable line, the same stuff used to provide cable television. Current cable subscriptions range from 256Kbps to 4Mbps. Cable is the best option when either the customer doesn't have a BT installed or is too far away from the telephone exchange to get ADSL.

"By December 2005 there were almost 9.8 million broadband connections to UK homes and businesses, with the number of broadband connections comprising 57% of all internet connections in September 2005." (February 2006, Ofcom Interim Report) Altogether 'broadband' is now the most widely used method of internet connection in the UK; this fact has influenced the report's ISP recommendation.

- Local Area Network

Your company also needs a Local Area Network. This is to enable all the workstations to be linked together so they can share data and peripherals. This section of the report will focus on describing the different LAN technologies. These are: power-line networks, dedicated Ethernet networks and wireless networking.

Power-line networking is not very well known, but can be at times a viable option when extra cabling is not permitted. This method makes use of the existing cables that are normally used just for power. This is very convenient because all rooms have a power supply socket. This technology is very advanced and is based on nearly 100 years of power line observation. By using complex algorithms that deal with the noise on the power line, this technology can supply each power socket in your office with a network connection. This method is not too expensive either.

However, Ethernet is the most popular and most widely deployed network technology in the world. It has set the standards for all networking technologies. It uses specific protocols to govern communications between connected computers. An Ethernet is constructed by laying a standardised UTP cable and installing Ethernet cards into all computers. The latter is unnecessary in your company's case because all of Pipeline Software Development's workstations have Ethernet ports already located on their motherboards. This also shows how well established this networking technology is. You will also need to purchase a router to connect all three of the

workstations and to share the internet connection. The main problem with any wired network is that you are stuck with the same office layout forever.

That is one of the main reasons why wireless networking sells so well. It allows businesses to have a more flexible ICT solution. When wireless technology first came into being there were many problems. The network speeds were very slow in comparison to Ethernet plus there were many intermittency problems and incompatibility issues. But now it is much more reputable, wireless network speeds are now in the 100Mbps+ range, equalling standard Ethernet networks. Security was originally another big problem; businesses did not implement the security tools simply because they were unfamiliar with the whole process. Now it has changed, networking companies have devised intuitive—easy to use tools enabling even the most untrained ICT user to setup and configure.

- Email

E-mail has changed over recent years and is now not just confined to conventional computer systems. Other devices like digital televisions and set-top boxes can send and receive email, as well as more portable devices like WAP phones. This means that your company will be able to use this method of communication much more effectively than say 5 years ago. It is also now possible to send multimedia elements, including sound, graphics and moving images via email. This increases the amount of possible uses it can have within your company.

possible future needs

Having described in some detail all of your company's current communication requirements, this report will now centre on any possible future needs.

- Website

It is quite possible that in the future your company may desire to invest in a company website. This could be used just simply for advertising, or could even become the base for any global contracts or international collaboration. Increasingly, potential clients use the web to search for information about products and services. It is therefore even more important for businesses and organisations to have an online presence, promoting themselves and their products and services on the web. Also, businesses are able to advertise other things including: work placements, even allowing applicants to fill out and submit job application forms online. Well developed and effective websites can actually cut an organisation's administrative burden and thus save time and money.

- 3G mobile communications

Along with broadband, the 3G market is becoming one of the most dynamic segments of the electronic communications market. Businesses, especially small and medium enterprises are making use of it to be optimally connected anywhere, anytime. This is all to do with the great vision of having a more accessible mobile internet. The latest mobile communications technologies all allow high-speed, mobile internet access, opening up a landscape where users can communicate, read, listen,

watch and work as they wish, wherever they wish, using mobile services personalised to their interests and even physical location. What has this do with your company? Well in the future you may wish to look into implementing this technology into Pipeline Software Development's infrastructure, it may even change the way you do business, work and communicate within your company. It could also provide your company with a keener competitive edge, allowing your employees to work more effectively in a wider range of environments, and will generate new opportunities for your software and content developers.

internet connection and office network

In the following division the report will recommend an internet connection and Local Area Network technology and will attempt to give good reason for all the choices made.

Getting the company online is essential. Joshua needs it for collaboration with other Fedora Core 4 developers and Ryan requires it for updating his blog. It will also give the company itself a 'presence' on the internet and will improve communication greatly. All of you will then be able to get in touch with clients quickly and effectively using email. Because of the large amount of data all of you will be transferring - emails, component test results, system updates etc, and because you "need them as soon as possible" (viz. Interview transcripts page - unit 4) this report recommends: '*Be* for Business users*' as the Internet Service Provider. Firstly, it was compared with a variety of others and found that it was the cheapest and most cost effective available. Secondly the type of technology they use to deliver their service was assessed and found to be very reliable. They use new ADSL2+ technology to provide customers with an incredibly fast 24Mbps broadband connection. This service costs £75 per month (£875 per annum) but is well worth it. Also, for an extra £5 per month (£60 per annum) this report recommends: the '*office email 10*' option. This gives the company 10 email accounts and plenty of email storage space. All the hardware (ADSL2+ modem, micro-filter, etc) is supplied by them and service makes use of the office's already installed BT phone line.

Each of you needs a connection to the Internet. This will be done by sharing the Internet connection using a wireless router. This technology has been investigated in great detail and this report can fully justify the use of wireless technology. It acknowledges that there are some problems, like intermittency with the network connections, bandwidth declension through walls and the initial cost which is generally greater than standard wired Ethernet networks. But with the lack of office space and the rather static characteristic of wired networks, it has been decided that wireless is the most suitable due to its adaptability. Below are the details of the router suggested for use, it is from a very well known networking manufacturer and is highly recommended.

'Belkin Pre-N F5D8230-4 108Mps Wireless MIMO Router' - Pre-N technology is perfect for your office because you want to run multimedia and high bandwidth applications reliably. With this router as the central network connection point, the connected computers will be able to share a broadband Internet connection and other networked peripherals such as hard drives, printers and much more. "Multiple In, Multiple Out" (MIMO) technology effectively doubles the data rate. Unlike ordinary wireless networking technologies that are confused by signal reflections, MIMO actually uses these reflections to increase the range and reduce 'dead spots' in the

wireless coverage area. To maximise the company's network security, it offers advanced Wi-Fi Protected Access (WPA) support that provides enhanced encryption.

To connect to the wireless network each workstation will need to be fitted with a wireless network card that has be compatible with both the Windows and Linux operating systems used in by your company. Therefore the report recommends the following; it will also make the most of the router's capabilities.

'Belkin F5D8000-4 108Mbps Wireless MIMO Pre-N Network Interface Card' - As already stated, Pre-N technology is perfect for your office because you wish to run multimedia and high bandwidth applications and these network interface cards will make use of that capacity. They are also compatible with both Linux and Microsoft Windows operating systems. They are easy to install and configure and offer advanced Wi-Fi Protected Access (WPA) support that provides enhanced encryption. Belkin drivers are updated regularly with performance improvements.

To cut down on costs and for compatibility issues, this report recommends: *'Mozilla Firefox 1.5'* and *'Mozilla Thunderbird 1.5'* open-source software for web browsing and for the use of email within the company. (An explanation of how to use email effectively is located at the end of this report).

security procedures

Because this report has recommended an 'always-on' internet connection and a wireless network, it is necessary to have important security procedures in place. Every workstation connected to the LAN will need to have the following pieces of software installed:

- (1) An anti-virus solution. Because viruses come in many shapes and sizes the anti-virus software needs be updated on a regular basis.
- (2) An active firewall. The router already has a firewall in place but just to make sure this report suggests a local installation for double-protection. Therefore this report recommends *'AVG plus Firewall Edition'* for John's 64-bit Windows XP system, and *'AVG for Linux'* for all the other workstations. The reason for choosing AVG is because it is compatible with both Windows and Linux, so the same interface will be used by every employee. This will save you from having to become acquainted with two different versions of anti-virus software.
- (3) Anti-spyware software. This report recommends that you install *'Spy Sweeper 4.5'*. This intuitive piece of software is incredibly effective in getting rid of nearly 100% of spyware according to independent researchers.

The correct use of this software along with some basic commonsense will decrease the chance of any security breaches. However, some of the hardware will also need to be configured correctly. Because the wireless network will be a 'closed' network it will not be broadcasting the SSID (Service Set Identifier), therefore this will need to be known to the connected workstations and kept fully concealed. You will also need to provide the network with a WPA access key, and this report recommends that this key is changed every month. Also another extremely important thing is that you download all software security patches as soon as they become available. Updates must take place daily! A recent survey showed that that 59% of SMEs were not deploying patches as soon as they were released, leaving their systems open to security risks. This concludes the security procedures section of the report.

internet access policy



This policy outlines the company's provision of internet services to you the employee

Pipeline Software Development Ltd.

is committed to the appropriate use of Information Communication Technologies in support of the software engineering process. The company actively *encourages* use of the Internet for research purposes and for communication with other software engineers who are not current employees; but does however, forbid the transmission of any code belonging to the company, internal communications between employees, progress reports or software revisions to any individual or computer on the outside.

Pipeline Software Development Ltd. has a legitimate right to capture and inspect any data stored or transmitted on the company's facilities (regardless of data ownership), when investigating system problems or potential security violations, and to maintain system security and integrity, and prevent, detect or minimise unacceptable behaviour on the workstations.

Personal use (non-work use) of the internet is strictly prohibited – even during work breaks. This is for several reasons, but mainly it is to save the company from being open to blame for any serious misuse with regard to the 'Computer Misuse Act' or any other future legislation. Only work-related communications are permitted over the company's internet connection. This includes the use of instant messenger, email, newsgroups and forums. This is because of the reduction in productivity that they cause when they are used for personal reasons.

There is no bandwidth usage limit as long as the data being sent or received has a genuine work purpose. However, there is a 250MB limit on the size of your mailbox. Therefore make sure all your emails are downloaded to your workstation's inbox on a regular basis.

All employees are required to sign a copy of this internet access policy in acknowledgement of its presence and their agreement to adhere to it.

Employee Details:

Title:

Forename:

Surname:

Signature:

Date:

This will be stored in a secure place while you are an employee of Pipeline Software Development.

how to use email effectively

In this final section some advice is given to email users within Pipeline Software Development. It is easy to feel overwhelmed sometimes by the sheer quantity of email received. Much of it can be unnecessary, some of it is spam. Below are some techniques for dealing with emails you have received, and writing emails your recipients will want to read.

Dealing with: Received emails. Do not let emails pile up in your inbox – this will just make you feel besieged. There are many sensible ways of dealing with emails once they are received:

- File it in a topic or project folder to read later.
- Carry out the actions requested by the sender (and then either filing it or deleting it).
- Delete it.

You can also set up filters and sieve rules for incoming mail; this is useful for organising mail from mailing lists and deleting spam straight away.

Writing: Effective emails. Below are some tips:

- Make sure the subject line sums up what the email is about.
- One topic for each email - get to the point and stick to the point!
- Maximum size: one paragraph or five bullet points.
- Write as you speak (use plain English) but don not write as you chat (avoid using slang).
- Assume nothing is private - email is like sending a postcard, not a private letter (unless encryption is applied to it).
- Don't use HTML or RTF formatting unless you are sure your recipient's email program can read it; *never* send formatted emails to mailing lists. Remember: what you see is not necessarily what they get.
- Don't send Word attachments - either include the text in the body of the email or send the attachment in a non-proprietary format such as PDF or HTML; even better, save the file onto a shared drive or web space and send them the URL (web address).

Style of communication: Email can range from the formal to the informal. It is a good idea to signal whether or not the email is formal by the type of language you use. Formal emails should begin "Dear [recipient's name]" and end with "Regards" or similar. Don't use an informal style unless you know the person very well.

Purpose of the email: Before you start, consider the purpose of the email, and whether the recipient will be interested. You need to make sure that your email expresses your purpose clearly.

This concludes the report about your company's communication needs. The author would like to wish Pipeline Software Development all the best for the future.

END OF REPORT